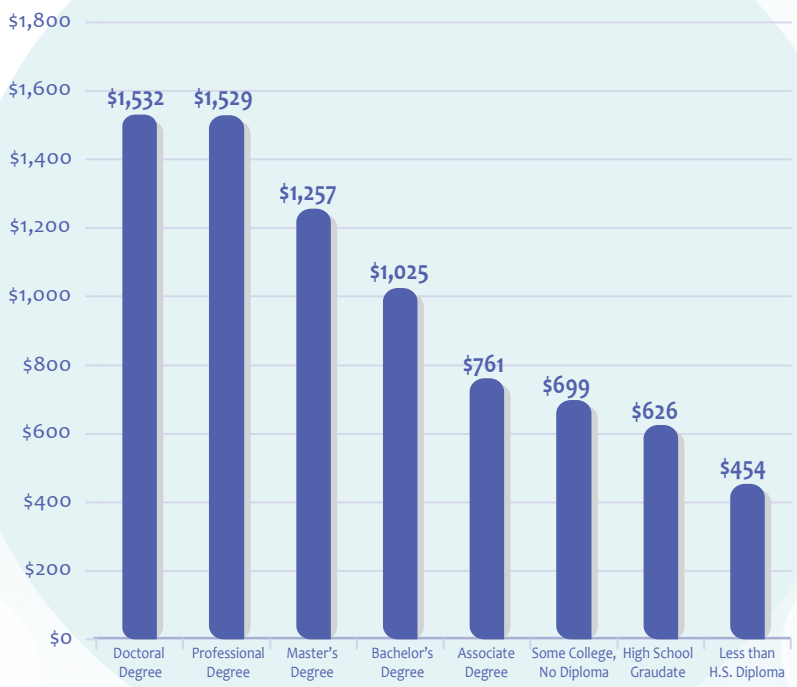
How to Prepare for STEM Careers

science • technology • engineering • mathematics

Occupations requiring knowledge of science, technology, engineering and/or math (STEM) are among some of the fastest growing careers in Minnesota. These occupations typically pay higher than average. According to the Bureau of Labor Statistics, wages increase dramatically with higher education levels.

Weekly Wage by Educational Attainment

U.S. 2009



More employers need lab people to interact with patients and doctors, not stay in the background. You need good communication skills, an interest in science, some aptitude for computer technology and to be detail oriented because patients lives are in your hands.

— CLINICAL LAB SUPERVISOR

STEM Science, Technology, Engineering & Mathematics

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What Skills Do You Need?

- **Analytical** skills to research a project and reach precise conclusions
- **Communication** and **cooperation** skills to interact with project partners
- **Computer** capabilities to stay current on appropriate software and equipment.
- **Creative** abilities to solve problems and draft new ideas and designs
- **Leadership** skills to lead projects and work well with customers
- **Mathematic** skills for calculations and formulations
- **Organization** skills to keep track of varied information needed to complete a project
- **Detail oriented** to pay attention to specific aspects of systems, programs or machines
- **Problem-solving** and troubleshooting skills to identify solutions to tough problems
- **Writing skills** to create reports and documentation

Job Outlook: Very Good

Minnesota is home to several Fortune 500 companies that hire engineers, lab workers, technicians and computer specialists for various projects. Workers are also hired by science and research facilities, and city, county and state departments.

The demand for engineers and related positions varies by type of industry and specialization. Positions related to medical technology are in especially high demand.

Growth is also occurring as a result of evolving technologies, like mobile devices and nanotechnology. Both hardware and software workers need to have skills to integrate current computer systems with future technologies.

On The Job

- Occupations related to science, technology, engineering and math (STEM) are in demand. People with engineering, science or advanced math knowledge are needed to help with advancements in computers, medicine, manufacturing and civic development.
- Today's engineers are not stereotypical nerds. Their research and applications are used to design amusement park rides, mobile multimedia devices, race cars and innovative buildings.
- Technology changes constantly. As a result, those who work in information technology must continually re-educate themselves about the latest hardware, software and programming changes. Often certification is required to prove training
- Employers prefer job seekers with internships, hands-on experience or hobbies that demonstrate STEM-related knowledge.

Science, Technology, Engineering & Mathematics

STEM
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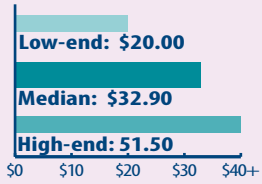
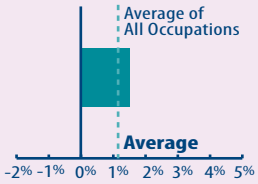
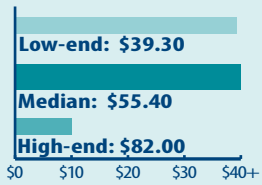
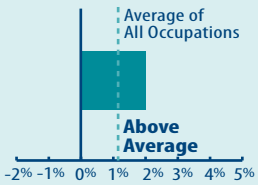
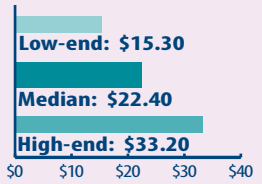
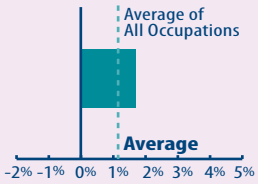
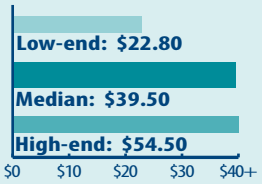
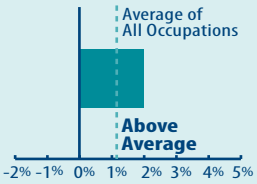
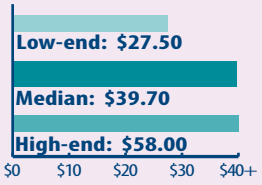
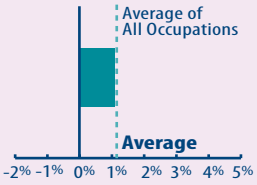
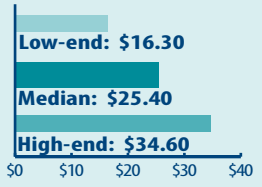
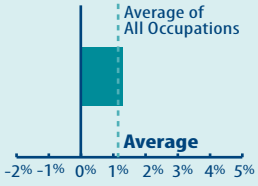
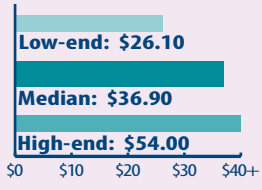
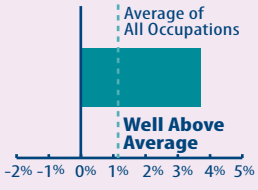
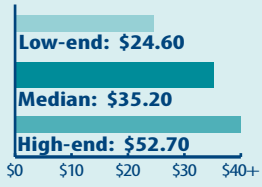
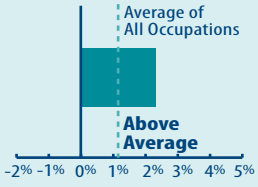
Occupation	Wages	Minnesota Growth	Education	Job Outlook
Chemists Conduct chemical analyses or chemical experiments in laboratories to test or develop new products or knowledge. **Employment: 1,460**			**4-6 Years** Entry-level requires bachelor's. Master's needed for research. Need Ph.D. to lead projects or teach.	**Good** Most growth is in drug manufacturing and research.
Computer & Information Systems Managers Plan or direct activities in electronic data processing, information systems, systems analysis and programming. **Employment: 9,370**			**Bachelor's Degree** Most have 4-year degree or higher, plus work experience.	**Good** Demand is high for those with industry-specific skills.
Computer Support Specialists Provide technical assistance or training to computer users with hardware or software problems. Might help in person or over the phone. **Employment: 11,880**			**2-4 Years** Most have specialized certification or degree in related field.	**Very Good** Technology upgrades spur growth. Workers needed in all industries.
Database Administrators Coordinate changes to computer databases or code. Might plan, coordinate and implement security measures to safeguard databases. **Employment: 2,300**			**2-4 Years** Most have degree in software, computer or information science. Certification recommended.	**Very Good** Demand is high due to growth of the Internet and increased data sharing.
Electrical & Electronics Engineers Design and oversee creation or installation of electrical and electronic items for commercial, military or scientific uses. **Employment: 5,870**			**Bachelor's Degree** Most have 4-year degree in civil engineering. License required.	**Good** New technogy and energy-efficient skills in demand.
Engineering Technicians Help engineers to design, test and assess products. Might do research, read blueprints, build prototypes and record data. **Employment: 11,270**			**Associate Degree** Most have 2-year degree in engineering technology. Work experience helps.	**Good** Demand higher for those with specialized skills.
Industrial Engineers Oversee the use of production facilities or employees. Might plan workflow, accident prevention, quality control or inventory control. **Employment: 6,410**			**Bachelor's Degree** Most have degree in industrial engineering. License required.	**Excellent** Demand high for new manufacturing technology skills.
Mechanical Engineers Plan or design tools, engines, machines or other equipment. Might oversee installation, operation and repair. **Employment: 5,170**			**Bachelor's Degree** Most have degree in mechanical engineering. License required.	**Very Good** Growth varies by industry and economic trends. Strong need to replace retirees.

Explore STEM Careers

STEM Science, Technology, Engineering & Mathematics

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Additional Resources

Related STEM Classes:

- Biology
- Blueprint Reading
- Business Computer Applications
- Calculus
- Chemistry
- Computer Applications
- Computer-Assisted Art
- Computer Programming
- Economics
- Electronics
- Geography
- Multimedia
- Physics
- Political Science
- Public Speaking
- Sociology
- Technical Writing
- Trigonometry
- Web Page Design

Ways to explore STEM:

- Enroll in classes related to science, technology, engineering or math (STEM).
- Join a science, biology, technology, electronics or math club. Create a project for a science fair.
- Set up your own LAN (local area network) for gaming.
- Create your own web page with a database and interactive elements.

Additional STEM Job Titles

- Aerospace Engineers
- Anthropologists
- Archeologists
- Astronomers
- Biologists
- Cartographers
- Computer Equipment Repairers
- Computer Operators
- Control System Specialists
- Database Analysts
- Environmental Scientists
- Geographers
- Geologists and Geophysicists
- Historians
- Interactive Media Designers
- Mathematical Technicians
- Meteorologists
- Physicists
- Project Managers
- Science Technicians
- Security Analysts
- Sociologists
- Software Engineers
- Support Technicians
- Statisticians
- Systems Developers
- Video Game Developers
- Web Developers

> T workers need to be aware of the latest technology and solve real-world business problems.
>
> — NETWORK SECURITY ANALYST

For more information on career, education and job resources in Minnesota: www.iseek.org

For information on STEM careers: www.iseek.org/careers/stem.html

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Upon request, the information in this brochure can be made available in alternative formats.

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